



**The Library
of Computer
& Information Sciences**

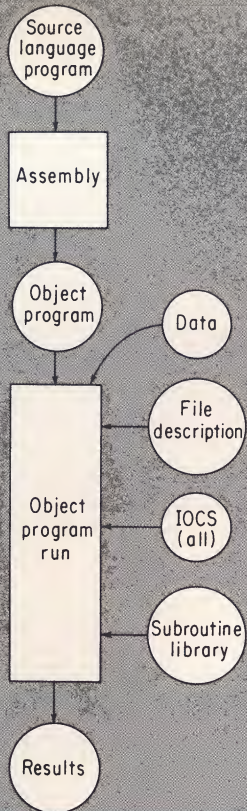
Front and Brown Streets
Riverside, New Jersey 08075

Address Correction Requested



IMPORTANT:

**DATED
MATERIALS
ENCLOSED**



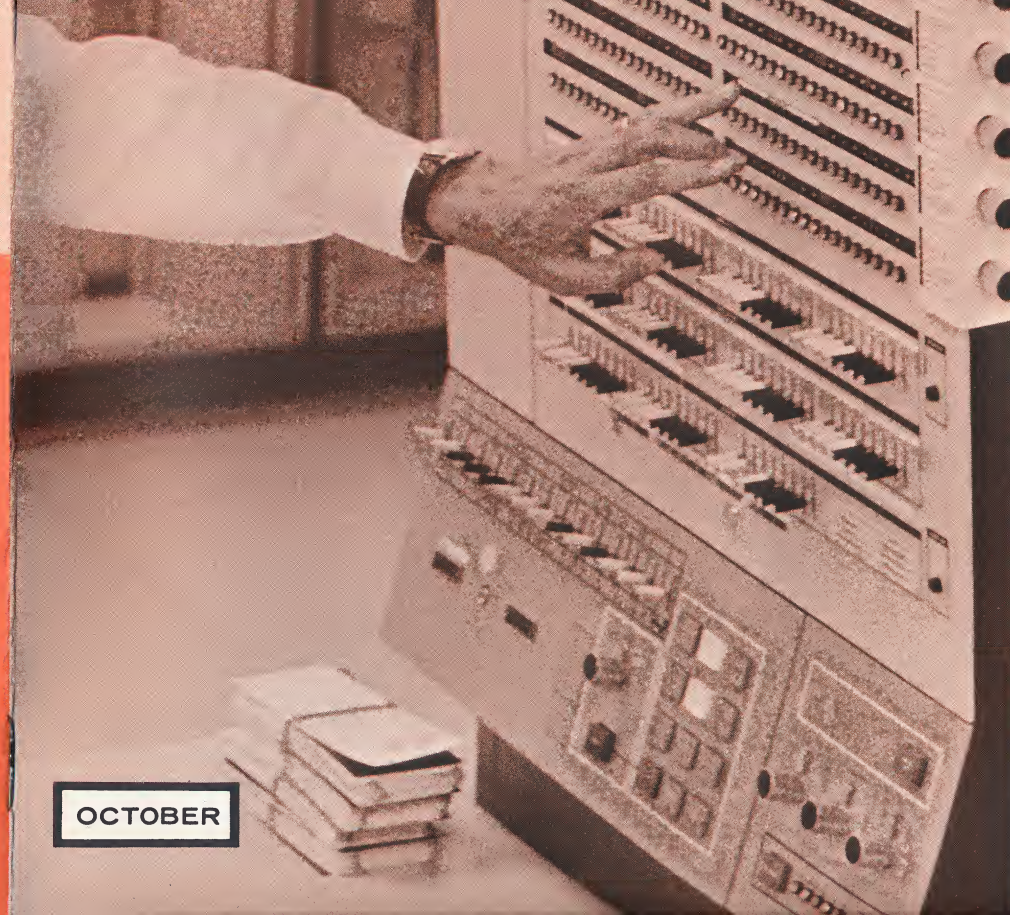
Contents

1. Introduction
2. Fundamentals
3. Programming Concepts
4. Software Introduced
5. Assembly
6. Macrocommands
7. Assembler Subroutines
8. Assembler Refinement
9. IOCS-Preprocessor, Buffer Subsystem
10. IOCS Operating Commands
11. The FOREMAN
12. Service Systems
13. Supervisors
14. The Loader and Allocator—LOAD

Appendices

- A. References
- B. FLAP Directives
- C. FLAP Directives (Alphabetic)
- D. Cross Reference Routines by Function

The Library of Computer and Information Sciences



Alternate Selection:

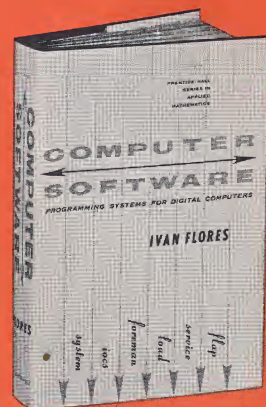
COMPUTER SOFTWARE: Programming Systems for Digital Computers

by Ivan Flores

Retail Price \$17.30

MEMBER'S PRICE \$11.90

*Plus one bonus credit toward the four
required for your next free Bonus Book*



OCTOBER

The Main Selection:

CONVERSATIONAL COMPUTERS

Edited by William D. Orr



The "computer revolution" has come upon us so swiftly that relatively few volumes have paused to survey some of the newest computer phenomena. In this month's Main Selection, CONVERSATIONAL COMPUTERS, William D. Orr, head of a firm of communications consultants, has put together a perceptive work that takes a wide-ranging look at pivotal new developments—in computing machines, computing techniques, programming languages, and strategies—all in anticipation of the time in the not-too-distant future when "personal computers" will be as common as personal passenger cars.

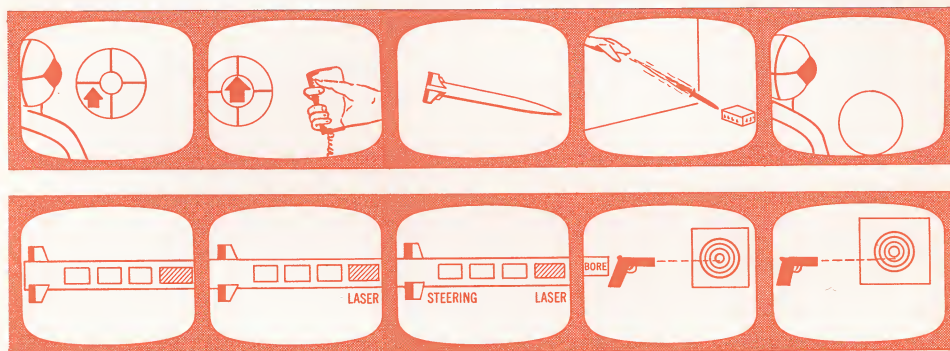
CONVERSATIONAL COMPUTERS takes its title from the author's thesis that "conversational interaction with computers is a major new phenomenon in its own right, not simply another "application" of computers. According to the editor of this provocative new volume, it ranks with such generic concepts as "data processing" and "automation."

"Conversational" is simply an all-inclusive term for what specialists variously refer to as time-sharing interactive systems, responsive modes of usage, reactive typewriters, or on-line problem solving. In contrast to automatic systems in which man feeds information into the machine, in conversational systems the machine searches, computes, and displays information until the needs of the human user are satisfied.

As befits a dramatic new concept, the reader is advised, while reading CONVERSATIONAL COMPUTERS, to think of the computer as just another piece of equipment. One need not be concerned about word-lengths, compilers, dynamic relocation, access times, switching techniques—or even where the punched cards went. And it is as pointless to inquire *what* conversational computers will be used for as it would be to ask what places one can drive to in an automobile or what letters one can compose on a typewriter.

The introductory section of CONVERSATIONAL COMPUTERS lays the conceptual groundwork for the selections that follow, with perceptive contributions by such distinguished authors as J. C. R. Licklider, John McCarthy, and Vannevar Bush.

• **Problem Solving Modes** deals with on-line systems in which the user manipulates the computing machinery as an intellectual tool. Of especial interest will be J. C. Shaw's contribution on JOSS (the Johnniac Open-Shop System) which monitors 10 typewriters and serves up to eight users concurrently. JOSS was developed because the scientists, mathematicians, and engineers at The RAND Corporation were not using computers in their daily work quite as much as had been hoped. JOSS is a masterpiece of elegant simplicity; children have even learned how to use it after only a few minutes' instruction.



One senior electronics engineer said:

"JOSS is becoming essential to our output like paper, or coffee. It speeds up calculations; makes it easy to try experiments. It is the greatest when it works. I have heard it compared favorably to beer and referred to as RAND's most important fringe benefit. People adjust their lives to JOSS. . . . No use coming to RAND before 10:00 a.m. when JOSS arrives; in fact noon or after 5:00 p.m. is a better time, JOSS is less busy. When JOSS starts typing answers, the titillating pleasure is equalled only by the ensuing anguish when JOSS breaks off into gibberish or goes away commending your program to oblivion. We can hardly live with JOSS, but we can't live without it. We're hooked."

• **Instructional Modes** examines systems in which the relationship between the user and computer program is the reverse of what it is in on-line problem solving. In such systems, the *computer* is always in charge of the situation. Leonard C. Silvern's contribution on Computer-Assisted Instruction (CAI) is a rigorous but nontechnical presentation of a totally new teaching concept made economically feasible by time-sharing.

● **Retrieval and Query Modes** deals with still another kind of relationship between user, computer, and stored information. In this mode, the object of the interaction is to find and fetch specific units known or believed to be (or hoped to be) in storage. Among the examples described is System Development Corporation's SYNTHEx, used by, among others, the Los Angeles Police Department in the identification of criminals by cross-correlation of information in crime reports.

● **Graphical Conversation Modes** covers a subject with wide-reaching implications for the future. Several distinguished contributors here describe computer-augmented design experimentation which now makes it possible to do with computers the graphic work done by draftsmen and illustrators.

● **Toward the Computer Utility** treats the logical extension of time-sharing and conversational applications to large-scale information networks. Of special interest will be the FCC's "Notice of Inquiry," a document widely discussed by computer people for its treatment of the underlying issues, although not easily available.

● **Psychological and Social Implications** explores the impact of the coming computer utilities and concludes that—in spite of the hidden threats to privacy—the consequences of the new technology will be beneficial in the long run.

CONVERSATIONAL COMPUTERS will be required reading for those who want a glimpse of the exciting new world of personal computer usage that awaits us. Automobiles have given man a mobility that far exceeds what evolution has provided; computers may conceivably be a comparable evolutionary step with regard to man's intellect. Who knows what exciting flights of imagination lie ahead when the human mind is freed of the routine mental "housekeeping" chores associated with thinking?

Among the Contributors:

Charles W. Adams • Paul Baran • Richard H. Bolt • Vannevar Bush • Federal Communications Commission • Merrill M. Flood • Joseph J. Gal • Edwin L. Jacks • John G. Kemeny • Robert S. Lee • J. C. R. Licklider • John McCarthy • Ulric Neisser • William D. Orr and the Staff of Bolt Beranek and Newman, Inc. • John E. Pfeiffer • Melvin W. Pirtle • Gerard Salton • Scott R. Schmedel • J. C. Shaw • Leonard C. Silvern • Robert F. Simmons • Frederick B. Thompson

CONTENTS

I. The Vision

1. Man-Computer Symbiosis
J. C. R. Licklider
2. Time-Sharing Computer Systems
John McCarthy
3. As We May Think
Vannevar Bush

II. Problem-Solving Modes

4. JOSS: Experience with an Experimental Computing Service for Users at Remote Consoles
J. C. Shaw
5. The Culler-Fried Approach to On-Line Computing
William D. Orr and the Staff of Bolt Beranek and Newman, Inc.
6. Man-Machine Interactive Systems and Their Application to Financial Analysis
Joseph J. Gal

III. Instructional Modes

7. CAI in an Expanding Universe of Educational Methodology
Leonard C. Silvern
8. Computer-Assisted Socratic Instruction
Richard H. Bolt
9. HELP
Melvin W. Pirtle

IV. Retrieval and Query Modes

10. Progress in Automatic Information Retrieval
Gerard Salton
11. SYNTHEx
Robert F. Simmons
12. DEACON-Type Query Systems
Frederick B. Thompson

V. Graphical Conversation Modes

13. Electronic Sketching
Scott R. Schmedel
14. The Robot Draftsman
John E. Pfeiffer
15. A Laboratory for the Study of Graphical Man-Machine Communication
Edwin L. Jacks

VI. Toward the Computer Utility

16. Responsive Time-Shared Computing in Business
Charles W. Adams
17. Commercial Information-Processing Networks
Merrill M. Flood
18. Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities
Federal Communications Commission

VII. Psychological and Social Implications

19. The Computer at Dartmouth
John G. Kemeny
20. Does the Interconnected Computer Network Pose a Hidden Threat of Invasion of Privacy?
Paul Baran
21. Computers as Tools and Metaphors
Ulric Neisser
22. The Computer and the Concept of Man
Robert S. Lee

The Main Selection:

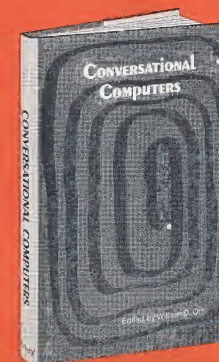
CONVERSATIONAL COMPUTERS

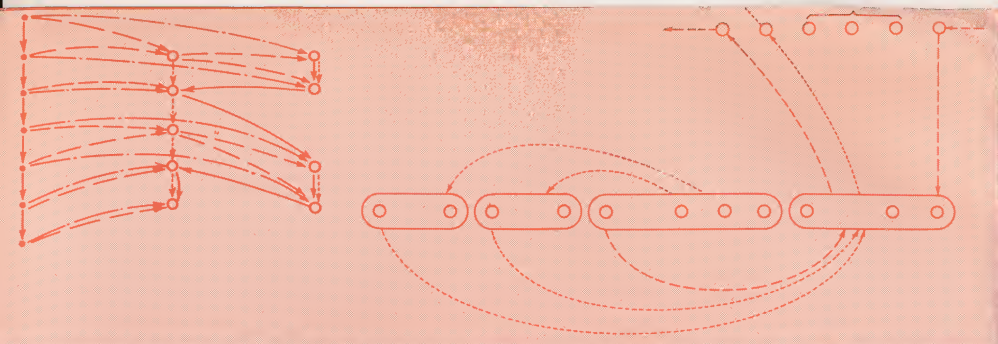
Edited by William D. Orr

Retail Price \$8.95

MEMBER'S PRICE \$6.95

Plus one bonus credit toward the four required for your next free Bonus Book





Alternate Selection:

COMPUTER SOFTWARE:

Programming Systems for Digital Computers

by Ivan Flores

This month's Alternate Selection, **COMPUTER SOFTWARE: PROGRAMMING SYSTEMS FOR DIGITAL COMPUTERS**, by Ivan Flores, is an unusually practical and fact-filled handbook of the growing techniques and applications of computer software. Specifically designed for programmers who want to know more about software, Dr. Flores' authoritative book can be read and used profitably by anyone with a basic knowledge of programming and even the briefest acquaintanceship with or access to computers.

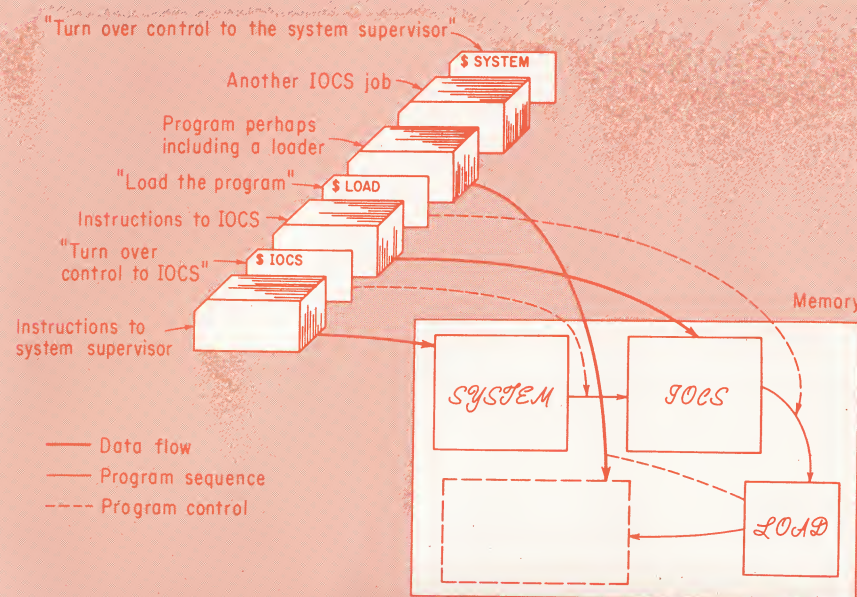
Dr. Flores begins with a basic review of the fundamental structure of the computer and its subsystems, exploring indexing and the various methods of addressing computers. With a brief but solid foundation in computer fundamentals established, the author then turns his attention to a comprehensive presentation of programming concepts. He reviews for the reader the principles of the construction of subroutines (a generalized sequence of instructions designed to perform a particular function when provided with specific problem data) and loops (the repetition of a sequence or instruction) and devises the highly utilitarian linkage and calling-system conventions which are a feature of this book.

Lists are important to all branches of programming. In **COMPUTER SOFTWARE**, Dr. Flores has developed a unique symbology for presenting list concepts. Because buffering (isolating circuits) is unavoidable in large computers with simultaneous IO (Input-Output) device operation, the author describes various systems leading up to the buffer pool, the most advanced concept required for a complete Input-Output Control System (IOCS).

It has been estimated that 99 per cent of translation for computer operation uses assemblers (a program equipping a computer to accept instructions in other than machine language) and that more than 20 per cent of average computer time is spent in translation. In his treatment of this highly important function, the author describes and analyzes systems ranging from the simplest to the most complete. Mnemonics are the kernel of any assembly language: the author uses the acronym FLAP (for FLores Assembly Program) to describe his system, which furnishes the various types of assembly commands used in the accompanying exercises—an important feature of the book making it especially useful for self-tuition.

Dr. Flores also describes a hypothetical automatic computer (FLAPJAC) with the addressing and indexing characteristics for his assembly language. This computer uses a 36-bit word—a convenient size for both alphabetic and numeric information.

The author of **COMPUTER SOFTWARE** is uniquely qualified to prepare such a work. A consultant in computer design and Associate Professor of Electrical Engineering at Stevens Institute of Technology, Dr. Flores has served as an advisor to manufacturers whose products range from small, special-purpose devices to large, general-purpose computers. He is also the author of *The Logic of Computer Arithmetic* and *Computer Programming*.



The International Reference Day Book 1969



A special selection of general interest

Your Appointment Diary, Expense Record, U.S. and International Reference, and World Atlas in full color . . . all combined in one stunning, convenient volume.

Your Appointment Diary and Expense Record 72-Page International Reference Section Full Color World Atlas
—combined in one stunning, convenient volume

The International Reference Day Book 1969

THE INTERNATIONAL REFERENCE DAY BOOK was created for the busy person; it will serve you in many ways.

As an Appointment Diary, it opens flat on your desk or telephone table, allowing you to see your entire week's schedule at a glance. Printed in two colors on special non-glare, creamy-smooth paper, the DAY BOOK provides space for your hour-by-hour appointments each day of the week, along with ample room

for daily reminders, telephone numbers, and special engagements. In addition to your full week's appointments, you will find a three-month calendar, and space for notes and expenses — your permanent record for income tax purposes.

A special feature of the DAY BOOK is a red satin marker ribbon (cut on the slant so it won't fray). Never again will you have to thumb through an appointment book while someone is waiting on the phone to find out if you're free at a certain time; the ribbon helps you find the current week instantly.

The Diary Section begins with November of 1968, and runs through 1969 and well into January, 1970; your transition from one year's Diary to the next will be comfortably unhurried and orderly. Here, too, you will find the major national and religious holidays, as well as those days you won't want to forget, such as St. Valentine's Day, Mother's Day, Father's Day, and Election Day.

THE INTERNATIONAL REFERENCE DAY BOOK 1969 puts you in touch with the entire world, giving you thousands of useful, fascinating facts and statistics.

The 72-page Reference Section is conveniently tab-indexed for fingertip ease in finding and turning to the section you want. You will find a country-by-country analysis of population, government, principal industries, exports and imports, languages and religions, capital cities, and the names of the main political parties and leaders.

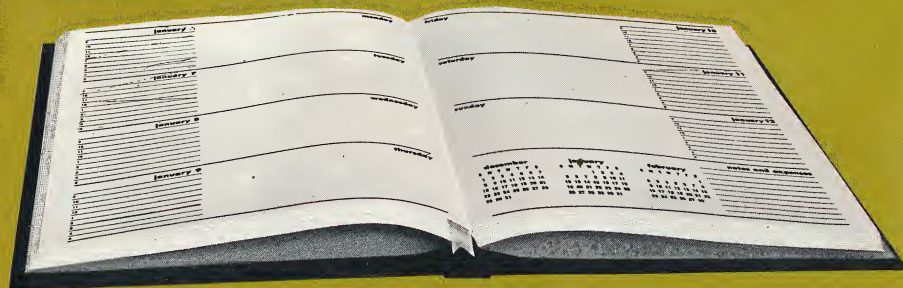
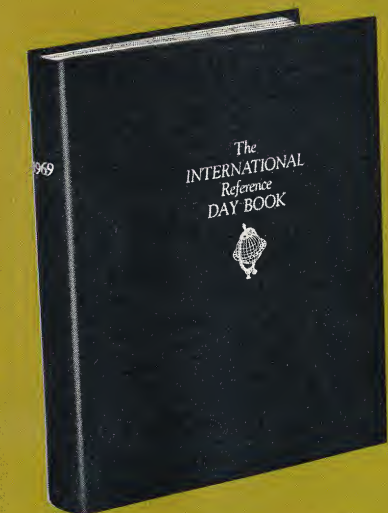
Here are charts showing the major currency units of the world and their value in relation to the dollar, U.S. foreign travel regulations (including travel to the Soviet Union), and a listing of principal international organizations.

The *Investor's Guide* contains information on stock exchange rules, minimum commissions on stocks, margin requirements from 1934 to the present, and profitability of major U.S. industries. Also listed are the 100 largest U.S. Government defense contractors; it is interesting to note that Johns Hopkins University and the Massachusetts Institute of Technology are larger defense contractors than Dow Chemical.

A brand new feature — and exclusive with the DAY BOOK — is a *World Computer Census*, showing the number of computer installations in the major countries of the world. How many are there in Russia? In Israel? In Red China? You'll find out in your 1969 INTERNATIONAL REFERENCE DAY BOOK.

The gourmet will find an *International Dictionary of Drinks* (Absinthe to Zubrovka Vodka) and an *International Dictionary of Cheeses* (Appenzell to La Vache Qui Rit). Here, too, he'll find *A Decade of Wines: A Vintage Chart, 1955-1964*.

The Reference Section is printed in two colors; the large, clear type face and tab indexing make needed information easy to find and understand. And it provides fascinating reading for the casual browser.



**Special Feature:
WORLD ATLAS
in full color**

In addition to your Appointment Diary and Reference Section, **THE INTERNATIONAL REFERENCE DAY BOOK 1969** contains 24 pages of full-color maps of the world. Distance scales are in both kilometers and miles. Major railways and roads are outlined, and you will also find international airports; relief shadowing is used to indicate mountain ranges. The names of cities and towns are in a clear, easy-to-read type face.

Another feature in the Atlas Section is a *World Time Computer*; for the first time you will be able to *easily* figure exactly what time it is and what day of the week it is anywhere in the world. Here, too, you will find an air mileage and jet flying time chart between cities of the world.

[illegible]

International Currency Exchange Rates¹

Country	Currency Unit	Fixed Exchange Rate	US cents per unit	Units per US dollar	SWIFT	Currency Code	Date Last Revalued	US cents per unit	Units per US dollar
Algeria	dinar	March 25, 1985	7.322	45.000	Bank	YAR	Jan. 11, 1983	0.078	305.000
Argentina	argent. peso		330.000	0.909	Bank	YAR	Apr. 1, 1983	0.037	0.937
Australia	Australian dollar		133.000	0.752	Bank	YAR			
Bahamas	Bahamian dollar		2.000	0.500	Bank	BOB			
Banladesh	Taka	Feb. 14, 1976	8.662		Bank	BOB	April 18, 1983	39.000	
Brazil	Real	Mar. 4, 1983	200.000		Bank	BOB		100.000	
Canada	Canadian dollar		0.667	1.500	Bank	BOB		0.917	
Chad	CFA franc		200.000		Bank	BOB	Mar. 12, 1983	100.000	
Colombia	Colombian peso		333.333		Bank	BOB	Apr. 12, 1983	100.000	
Czechoslovakia	Czechoslovak koruna		100.000		Bank	BOB	Sept. 2, 1983	2.000	50.000
Denmark	Danish krone		6.556		Bank	BOB		13.000	
Dominican Republic	Dominican peso		20.000		Bank	BOB	May 1982	52.000	1.904
Ecuador	Ecuadorian sucre		10.000		Bank	BOB		13.000	

¹Source: International Monetary Fund, Washington, D.C.

The International Dictionary of Cheeses

[illegible]

1960-1961
 1962-1963
 1964-1965
 1966-1967
 1968-1969
 1970-1971
 1972-1973
 1974-1975
 1976-1977
 1978-1979
 1980-1981
 1982-1983
 1984-1985
 1986-1987
 1988-1989
 1990-1991
 1992-1993
 1994-1995
 1996-1997
 1998-1999
 2000-2001
 2002-2003
 2004-2005
 2006-2007
 2008-2009
 2010-2011
 2012-2013
 2014-2015
 2016-2017
 2018-2019
 2020-2021
 2022-2023
 2024-2025
 2026-2027
 2028-2029
 2030-2031
 2032-2033
 2034-2035
 2036-2037
 2038-2039
 2040-2041
 2042-2043
 2044-2045
 2046-2047
 2048-2049
 2050-2051
 2052-2053
 2054-2055
 2056-2057
 2058-2059
 2060-2061
 2062-2063
 2064-2065
 2066-2067
 2068-2069
 2070-2071
 2072-2073
 2074-2075
 2076-2077
 2078-2079
 2080-2081
 2082-2083
 2084-2085
 2086-2087
 2088-2089
 2090-2091
 2092-2093
 2094-2095
 2096-2097
 2098-2099
 2100-2101
 2102-2103
 2104-2105
 2106-2107
 2108-2109
 2110-2111
 2112-2113
 2114-2115
 2116-2117
 2118-2119
 2120-2121
 2122-2123
 2124-2125
 2126-2127
 2128-2129
 2130-2131
 2132-2133
 2134-2135
 2136-2137
 2138-2139
 2140-2141
 2142-2143
 2144-2145
 2146-2147
 2148-2149
 2150-2151
 2152-2153
 2154-2155
 2156-2157
 2158-2159
 2160-2161
 2162-2163
 2164-2165
 2166-2167
 2168-2169
 2170-2171
 2172-2173
 2174-2175
 2176-2177
 2178-2179
 2180-2181
 2182-2183
 2184-2185
 2186-2187
 2188-2189
 2190-2191
 2192-2193
 2194-2195
 2196-2197
 2198-2199
 2200-2201
 2202-2203
 2204-2205
 2206-2207
 2208-2209
 2210-2211
 2212-2213
 2214-2215
 2216-2217
 2218-2219
 2220-2221
 2222-2223
 2224-2225
 2226-2227
 2228-2229
 2230-2231
 2232-2233
 2234-2235
 2236-2237
 2238-2239
 2240-2241
 2242-2243
 2244-2245
 2246-2247
 2248-2249
 2250-2251
 2252-2253
 2254-2255
 2256-2257
 2258-2259
 2260-2261
 2262-2263
 2264-2265
 2266-2267
 2268-2269
 2270-2271
 2272-2273
 2274-2275
 2276-2277
 2278-2279
 2280-2281
 2282-2283
 2284-2285
 2286-2287
 2288-2289
 2290-2291
 2292-2293
 2294-2295
 2296-2297
 2298-2299
 2300-2301
 2302-2303
 2304-2305
 2306-2307
 2308-2309
 2310-2311
 2312-2313
 2314-2315
 2316-2317
 2318-2319
 2320-2321
 2322-2323
 2324-2325
 2326-2327
 2328-2329
 2330-2331
 2332-2333
 2334-2335
 2336-2337
 2338-2339
 2340-2341
 2342-2343
 2344-2345
 2346-2347
 2348-2349
 2350-2351
 2352-2353
 2354-2355
 2356-2357
 2358-2359
 2360-2361
 2362-2363
 2364-2365
 2366-2367
 2368-2369
 2370-2371
 2372-2373
 2374-2375
 2376-2377
 2378-2379
 2380-2381
 2382-2383
 2384-2385
 2386-2387
 2388-2389
 2390-2391
 2392-2393
 2394-2395
 2396-2397
 2398-2399
 2400-2401
 2402-2403
 2404-2405
 2406-2407
 2408-2409
 2410-2411
 2412-2413
 2414-2415
 2416-2417
 2418-2419
 2420-2421
 2422-2423
 2424-2425
 2426-2427
 2428-2429
 2430-2431
 2432-2433
 2434-2435
 2436-2437
 2438-2439
 2440-2441
 2442-2443
 2444-2445
 2446-2447
 2448-2449
 2450-2451
 2452-2453
 2454-2455
 2456-2457
 2458-2459
 2460-2461
 2462-2463
 2464-2465
 2466-2467
 2468-2469
 2470-2471
 2472-2473
 2474-2475
 2476-2477
 2478-2479
 2480-2481
 2482-2483
 2484-2485
 2486-2487
 2488-2489
 2490-2491
 2492-2493
 2494-2495
 2496-2497
 2498-2499
 2500-2501
 2502-2503
 2504-2505
 2506-2507
 2508-2509
 2510-2511
 2512-2513
 2514-2515
 2516-2517
 2518-2519
 2520-2521
 2522-2523
 2524-2525
 2526-2527
 2528-2529
 2530-2531
 2532-2533
 2534-2535
 2536-2537
 2538-2539
 2540-2541
 2542-2543
 254

U.S. Population: by Age/1960-1985

[illegible]

U.S. Foreign Travel Regulations

PASSPORT

An application for a passport may be made before a Clerk of a Federal or State Court authorized by law to administer oaths; one of the Passport Agencies located in Boston, New York, Los Angeles, Miami, New Orleans, New York, San Francisco, Seattle, and Washington, D.C., and many other cities.

... who apply for passports must present proof of their native born status should present a birth certificate or a copy of birth record obtainable from the local office of the locality in which the birth is not obtainable.

...the birth occurring...
...a child by local authority indicating...
...should be submitted along with any of...
...of date and place of birth accompanied by a...
...or some other individual having...
...and place of birth...
...of child should...

submit evidence of citizenship through a native or naturalized citizenship certificate, a valid passport will be accepted as evidence of citizenship.

... Court or Passport Agency to the satisfaction of the presentation of an acceptable document of identity or other acceptable document of identity.

Municipal, industrial, or business identity

2 years, shall accompany the applicant and graph is preferred when a wife and/or child of the passport holder is in black and white.

over 2 by 2 inches per 100 than
page, initial pass is recommended.

... is exempted by Clarks of
\$2. The fee for renewing a
... expires from 21
March to Guatemala
American Valley to South
as infected. Cayman,
sever approximation of all
contains
Valid passport

... 2-year period, but
... not be more than 3
... a completed renewal
... and renewal fee to the
... Washington, D.C., 20541
... to the Secretary

1 The national representative
2 A consular representative of



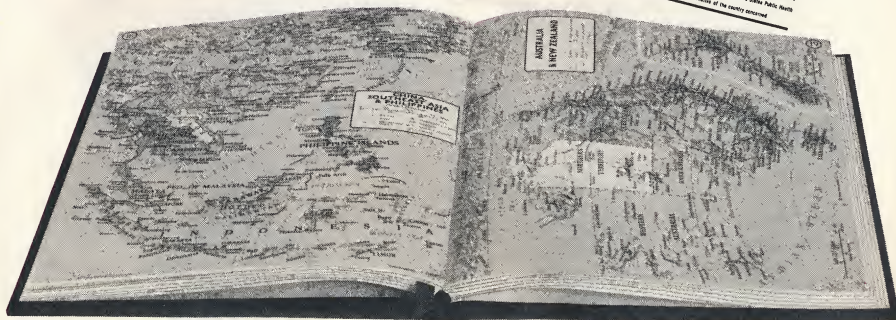
[Faint handwritten text]



(Faint background markings)

Figure 1

1990



The International Reference Day Book 1969 Features

WORLD TRENDS

(country by country)

- Growth Rates & Living Standards
- World Population
- World Trade

WORLD ORGANIZATIONS

FOREIGN COUNTRIES

- Political
 - Form of Government
 - Principal Parties and Leaders
- General
 - Principal Languages and Religions
 - Area
 - Capital
 - Other Principal Cities
- Economic
 - Major Products, Imports, Exports
 - Trading Partners
 - Government Income & Expenditure
 - Gold Reserves

WORLD EXPORTS OF MANUFACTURED GOODS

INTERNATIONAL CURRENCY EXCHANGE RATES

THE UNITED STATES OF AMERICA

- Executive, Legislative and Judicial Branches
- Population, Employment, Earnings
- Internal and External Economy
- The Fifty States
 - Economic Development and Planning Agencies
 - Growth, Finances, Tax Rates, Crime

FOREIGN DIPLOMATS AND COMMERCIAL REPRESENTATIVES TO THE U.S.A.

U.S. REPRESENTATIVES ABROAD

AEROSPACE AND TECHNOLOGY

- World Computer Installation
- Census, Country by Country
- Computer Manufacturers' Share of Selected World Markets

- Chronology of Manned Space Flight
- World Airlines
- Miles and Passengers Flown
- Numbers and Makes of Aircraft in Use

FORMS OF ADDRESS AND PROTOCOL CHART

INVESTOR'S GUIDE

- Stock Exchange Rules
- Patterns in Stock Prices
- Bond and Stock Yields
- Largest U.S. and Foreign Industrial Corporations
- Profitability of Major U.S. Corporations
- 100 Largest U.S. Government Defense Contractors

THE INTERNATIONAL DICTIONARY OF DRINKS

THE INTERNATIONAL DICTIONARY OF CHEESES

A DECADE OF WINES: A VINTAGE CHART 1955-1964

1969 APPOINTMENT DIARY AND EXPENSE RECORD

WORLD TIME ZONE MAP AND WORLD TIME COMPUTER

AIR MILEAGE AND JET FLYING TIME CHART BETWEEN CITIES OF THE WORLD

WORLD MAPS (in full color)



The International Reference Day Book 1969

Deluxe Kid-Soft Binding (the look and feel of leather, but stronger and more soil-resistant)

23 Carat Gold Stamping

Elegant Maroon and Black Gift Box with Gold Stamping

Convenient Fingertip Tab-Indexing of All Reference Material

Red Satin Marker Ribbon (cut on the slant so it won't fray)

Superbly Printed in Two Colors Throughout on Heavy, Creamy-Smooth Monadnock Caress Paper

A Generous 8½" x 10½" Volume

(It lies flat when opened to any page)

Endpapers of Antiqued World Maps

List Price \$13.00

Member's Price \$9.95

Plus one bonus credit toward the four required for your free Bonus Book



THE INTERNATIONAL REFERENCE DAY BOOK 1969, Special Selection, may be ordered in addition to or instead of the Main Selection.

Enroll new members in The Library of Computer and Information Sciences and receive **FREE** copies of books from this list of Recent Selections

Do you have friends or colleagues who would enjoy the many benefits of membership in The Library of Computer and Information Sciences? Why not tell them about the wide range of selections, books on systems design, operations research, information retrieval, programming, and many other topics, all available at reduced Member's prices—plus free Bonus Books. For every member you enroll, we will send you one free book from this list of Recent Selections. Of course, you may enroll as many members as you wish, simply by filling in the spaces below. To receive your free books, return this form, with the new members' signatures, to The Library of Computer and Information Sciences, Front and Brown Streets, Riverside, New Jersey 08075.

Please enroll the new member(s) listed below. Send to each, as a free Membership Gift, the volume listed—any book described in this list of Recent Selections.* Also send the first Membership Selection indicated—any of the current Selections or any of the volumes in this list of Recent Selections. SEND ME MY FREE BOOKS AS SHOWN—ONE FOR EACH NEW MEMBER I HAVE ENROLLED.

*Except those designated "Not available as free books."

New Member _____

Address _____

City _____

State _____ Zip _____

Free Book _____

First Selection _____

New Member's signature _____

New Member _____

Address _____

City _____

State _____ Zip _____

Free Book _____

First Selection _____

New Member's signature _____

New Member _____

Address _____

City _____

State _____ Zip _____

Free Book _____

First Selection _____

New Member's signature _____

My Name _____

Account Number _____

Address _____

City _____

State _____

Send as my Free Book(s) _____

(1) _____

(2) _____

(3) _____

RECENT SELECTIONS of The Library of Computer and Information Sciences



Any of the Selections described in this brochure may be ordered by members of The Library of Computer and Information Sciences, in addition to or instead of the current Selections. All are available at reduced Member's Prices. One Bonus Book Credit is given for each Selection purchased. To order, please indicate the code numbers of the books you have chosen on the enclosed Order Card.

***Digital Processing: A System Orientation**
By Louise Schultz (42270)
 A highly readable survey of the principles, techniques, and applications of digital processing in linguistic, rather than symbolic, terms. Emphasizes fundamental concepts and functions of both devices and programs.
Retail price \$14.35
Member's price \$8.95

***Mathematical Methods for Digital Computers, Vol. II** (60960)
Edited by Anthony Ralston and Herbert S. Wilf
 Covers the breathtaking advances in the field of numerical analysis since the publication of Volume I. Topics include: programming languages, the quotient-difference algorithm, numerical linear algebra, numerical quadrature, numerical solution of equations, and much more.
Retail price \$11.95
Member's price \$8.50

Probability Theory and Its Applications Volume 1, Third Edition (70350)
By William Feller
 This newly revised edition of the recognized classic develops probability theory as a mathematical discipline and, at the same time, illustrates a broad variety of practical problems and the modern techniques for solving them. A self-contained introductory course.
Retail price \$10.95
Member's price \$7.95

***Automatic Data Processing** (35450)
By Elias M. Awad and the Data Processing Management Association
 Complete introduction to the principles and procedures of automatic data processing—representing the combined efforts of the leading computer managers and a top writer-educator in the field.
Retail price \$11.95
Member's price \$7.50

***Developing Computer-Based Information Systems** (42060)
By Perry E. Rosove
 A comprehensive study of the new information technology. Examines development of systems—including requirements, design, production, installation and operation—and emphasizes the typical management problems likely to be encountered in their implementation. An intensely practical book.
Retail price \$14.95
Member's price \$10.95

***The Analysis of Information Systems** (33400)
By Charles T. Meadow
 Here is a careful study of the languages of information retrieval, the organization of records and files, and the machine processing of stored information. Supplies the background needed for participation in the analysis and design of information-handling systems and for understanding the literature in the field.
Retail price \$11.95
Member's price \$8.25

***Display Systems Engineering** (42370)
Edited by H. R. Luxenberg and R. L. Kuehn
 A thorough exploration of the devices and systems of recording and displaying computer-based information. Develops theoretical foundations of all display systems and discusses their technological applications. Includes many illustrations and diagrams.
Retail price \$16.50
Member's price \$11.95

Introduction to Computing (56300)
By T. E. Hull
 Thoroughly explains the principles and applications of computing. A highly useful new guide to algorithms, stored-program computers, and programming techniques, it focuses on Fortran IV—one of the most widely used algorithmic languages in computing.
Retail price \$10.60
Member's price \$7.75

Introduction to Computational Linguistics
By David G. Hays (56490)
 A comprehensive work covering computer applications to linguistics. Includes discussions of storage and control, text processing, transformational parsing—and applications of these processes to linguistic research, publication systems, information dissemination and retrieval, and translation.
Retail price \$9.75
Member's price \$7.50

***Electronic Information Handling (44100)**
Edited by Allen Kent and Orrin E. Taulbee
 A complete overview of the rapidly expanding field of information handling and retrieval. Among the topics covered: interpreting signals and numerical information, future hardware for electronic information-handling systems.
Retail price \$11.00
Member's price \$7.95

The Impact of Computers on Management (55140)
Edited by Charles A. Myers
 Presents the latest thinking and research on the relationship between man and machine and the roles of both in industrial organization, stressing the implications of computers for managerial work. Based on a conference of experts at the Alfred P. Sloan School of Management of Massachusetts Institute of Technology.
Retail price \$10.00
Member's price \$7.50

***Natural Language and the Computer** (63840)
Edited by Paul L. Garvin
 The first book to provide a comprehensive survey of the emerging field of language data processing (by "language" is meant a natural language such as English or Russian, and not an artificial language such as ALGOL, FORTRAN, or MAD. It not only covers all aspects of the computer processing of natural-language data, but also gives extensive background material in linguistics, mathematics and computation.
Retail price \$13.75
Member's price \$9.25

***Programming Systems and Languages** (70790)
Edited by Saul Rosen
 A comprehensive, detailed review of computer software that brings together the most authoritative articles from computer journals and proceedings. Covers the entire history of programming systems and languages. So up-to-date that it treats areas still being developed and tested.
Retail price \$12.50
Member's price \$8.95

See special offer on reverse side.

Introduction to Dynamic Programming (56470)
By George L. Nemhauser
 A volume of unique value to those concerned with optimization problems. Analyzes in order elementary and complex systems; emphasizes when to use dynamic programming and how to do the computations; provides numerous flow charts and exercises.
Retail price \$7.95
Member's price \$6.50

Digital Computer Programming (42190)
By Peter A. Stark
 Uniquely practical introduction to the programmer's art, with step-by-step solutions to hundreds of typical computer problems. Covers computer characteristics, applications, techniques, and languages.
Retail price \$9.95
Member's price \$7.50

***Electronic Digital Systems** (44070)
By R. K. Richards
 A pioneering exposition of the fundamentals, concepts, and ideas pertinent to a wide range of digital systems. Arranged so that the reader is provided with ready access to every important scheme devised to meet the requirements of digital systems, including the most thorough presentation of the stored-program concept yet published.
Retail price \$15.95
Member's price \$10.95

***Integrated Data Processing Systems**
By E. Jerome McCarthy and J. A. McCarthy. Edited by Durward Humes (55660)
 A comprehensive, jargon-free book "aimed at those who want to understand in depth how data processing machines can help analyze business information. It is well organized, highly readable." — *Elias M. Awad, De Paul University*
Retail price \$8.95
Member's price \$6.95

Elements of Data Processing Mathematics
By W. T. Price and M. Miller (41660)
 Concise, comprehensive exposition of the science of mathematics as it is applied in computer programming and data processing. Includes matrices, linear programming, series and iterative methods. Hundreds of challenging exercises. An ideal volume for self-instruction.
Retail price \$10.50
Member's price \$7.75